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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,516	06/05/2006	Jorg Muller	P&P-102	6378

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EXAMINER	
HURST, JONATHAN M	
ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/560,516	MULLER ET AL.	
	Examiner	Art Unit	
	JONATHAN M. HURST	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application.
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 22-26, 34-35, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bakajin et al. (US 7,290,667) in view of Mayer et al. (US 6,763,710) and in view of Tipler et al. (US 6,652,625).

Regarding claim 22 Bakajin et al. discloses a miniaturized gas chromatograph comprising a miniaturized separation column and a miniaturized device for the storage and/or enrichment of molecules or atoms, or both, especially for a miniaturized gas chromatograph, (See Abstract and Col. 5 Line44-Col. 6 Line 10) characterized by a chamber with a filling material, the filling material comprising carbon nanotubes and/or

carbon nanofibers, (See Abstract and Figure 1A-1D carbon nanofibers 14) and wherein the filling material is covered thus forming the chamber (See Col. 3 Lines 40-46 and Figure 1D cover 15) and wherein the chamber comprises an inlet and an outlet for the delivery and extraction of a sample of molecules or atoms, or both. (See Figure 3 where a channel with inlet and outlet is shown and further it is inherent that when fluid is meant to flow through a channel said channel must have and inlet and outlet)

Bakajin does not specifically disclose the miniaturized device wherein the filling material is covered by at least one layer of amorphous carbon.

Mayer et al. discloses the use of a layer of Diamond-Like Carbon, an amorphous carbon, to seal or cover an opening formed in a silicon substrate. (See Col. 2 Line 61-Col. 3 Line 6)

It would have been obvious to one of ordinary skill in the art at the time of invention to use an amorphous carbon sealing a channel as described by Mayer et al. to seal a channel in the device of Bakajin because the amorphous carbon Diamond-Like carbon, is known to be used to cover silicon channels with as required by Bakajin (See Col. 3 Lines 40-45 and Figure 1D where cover 15 closes a gap in a silicon substrate also see Mayer Fig. 3 where Diamond-Like carbon layer 15 covers a gap in a silicon substrate 5) and amorphous Diamond-Like carbon provides high hardness and stability especially suited for use as a cover layer. (See Mayer Col. 1 Lines 48-54)

Modified Bakajin discloses using the device in gas chromatography systems in order to perform more targeted gas chromatography but does not specifically disclose the outlet of the chamber being directly connected to the separation column of a gas chromatograph.

Tipler et al. discloses a gas chromatography system where in there is a pre-concentrator comprising a chamber packed with an material therein to concentrate analytes. The outlet of the chamber is directly connected to the inlet of a separation column of a gas chromatograph. (See Fig. 6 and Col. 4 Lines 32-53 where the outlet 72 of a chamber 26 is connected to a separation column 80 of a gas chromatograph)

It would have been obvious to one of ordinary skill in the art at the time of invention to connect the outlet of a chamber for concentrating materials as described by modified Bakajin et al. to the inlet of separation column of a gas chromatograph as described by Tipler et al. because it is well known in the art to connected the outlet of analyte concentrating chamber to the inlet of gas chromatograph separation column in order to perform accurate analysis of an analyte using a gas chromatograph. Furthermore modified Bakajin specifically mentions being used in gas chromatograph systems and as such it would have been obvious to directly connect the device of modified Bakajin to the inlet of a gas chromatograph in order to quickly and effectively convey analytes between the two said devices.

Finally as instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect the two devices as described by Bakajin, i.e. a gas chromatography system and a miniaturized device used therein, since such modification would have involved making elements integral. Making elements integral is generally recognized as being within the level of ordinary skill in the art. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 23 modified Bakajin discloses all the claim limitations as set forth above as well as the miniaturized device characterized in that the filling material is porous. (See Col. 2 Line 60- Col. 3 Line12 where nanotubes have pores)

Regarding claims 24-26 modified Bakajin discloses all the claim limitations as set forth above as well as the miniaturized device characterized in that the chamber is formed on a carrier characterized in that the chamber is located on the surface of a carrier or that it is embedded in the surface of the carrier and characterized in that the carrier is a silicon wafer. (See Figure 1A-1D and Col. 3 Lines 50-65 where chamber is formed in or on a silicon substrate)

Regarding claim 34 modified Bakajin discloses all the claim limitations as set forth above as well as the miniaturized device characterized in that the chamber is formed in a shape of a channel. (See Abstract and Figure 3 where chamber is a

channel)

Regarding claim 35 modified Bakajin discloses all the claim limitations as set forth above as well as the miniaturized device characterized in that the outlet can be connected to the inlet of a separation column. (See Bakajin Col. 5 Line 44- Col. 6 Line 10 where the device is used in and or as a separation column system and thus is fully capable of being connected to a separation column)

Furthermore regarding limitations recited in claim 35 which are directed to a manner of operating disclosed device, it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Regarding claim 41 Bakajin et al. discloses a method for the analysis of molecules or atoms (See Abstract and Col. 5 Line44-Col. 6 Line 10)

wherein the molecules or atoms are directed into a chamber of a miniaturized device said chamber comprising a filling material, the filling material comprising carbon

nanotubes and/or carbon nanofibers (See Abstract and Figure 1A-1D carbon nanofibers 14)

and wherein the filling material is covered thus forming the chamber, (See Col. 3 Lines 40-46 and Figure 1D cover 15)

and wherein the chamber comprises an inlet and an outlet for the delivery and extraction of a sample of molecules or atoms, or both. (See Figure 3 where a channel with inlet and outlet is shown and further it is inherent that when fluid is meant to flow through a channel said channel must have and inlet and outlet)

Bakajin does not specifically disclose the method wherein the miniaturized device comprises a filling material is covered by at least one layer of amorphous carbon.

Mayer et al. discloses the use of a layer of Diamond-Like Carbon, an amorphous carbon, to seal or cover an opening formed in a silicon substrate. (See Col. 2 Line 61-Col. 3 Line 6)

It would have been obvious to one of ordinary skill in the art at the time of invention to use an amorphous carbon sealing a channel as described by Mayer et al. to seal a channel in a miniaturized device in the method of Bakajin because the amorphous carbon Diamond-Like carbon, is known to be used to cover silicon channels

with as required by Bakajin (See Col. 3 Lines 40-45 and Figure 1D where cover 15 closes a gap in a silicon substrate also see Mayer Fig. 3 where Diamond-Like carbon layer 15 covers a gap in a silicon substrate 5) and amorphous Diamond-Like carbon provides high hardness and stability especially suited for use as a cover layer. (See Mayer Col. 1 Lines 48-54)

Modified Bakajin does not specifically disclose the method wherein the molecules or atoms are directed from the outlet to a miniaturized separation column.

Tipler et al. discloses a method for the analysis of analytes wherein a molecules are sent to a pre-concentrator comprising a chamber packed with an material therein to concentrate analytes and are conveyed directly to the outlet to a miniaturized separation column in a gas chromatograph. (See Fig. 6 and Col. 4 Lines 32-53)

It would have been obvious to one of ordinary skill in the art at the time of invention to convey analytes directly from the outlet of a chamber for concentrating materials as described by modified Bakajin et al. to the inlet of separation column of a gas chromatograph as described by Tipler et al. because it is well known in the art to convey analytes between the outlet of concentrating chamber to the inlet of gas chromatograph separation column in order to perform accurate analysis of an analyte using a gas chromatograph.

Furthermore modified Bakajin specifically mentions being used in gas chromatograph systems and as such it would have been obvious to directly connect the device of modified Bakajin to the inlet of a gas chromatograph and convey molecules between the devices in order to quickly and effectively convey analytes between the two said devices for analysis.

Regarding claims 42-43 modified Bakajin discloses all the claim limitations as set forth above as well as the method characterized in that molecules or atoms are stored and/or enriched from a fluid stream where said fluid stream is a gas stream (See Col. 5 Lines 24-29 where filtering, separating, and or concentrating are forms of enrichment and can be performed on a gas fluid stream)

1. Claims 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over unpatentable over Bakajin et al. (US 7,290,667) in view of Mayer et al. (US 6,763,710) and in view of Tipler et al. (US 6,652,625) as applied to claims 22-26, 34-35, and 41-43 above, and further in view of Gordon (US 5,954,860).

Regarding claims 27 and 30, modified Bakajin discloses all the claim limitations as set forth above but does not disclose the miniaturized device characterized in that a heating unit is provided or the miniaturized device characterized in that a cooling unit is provided.

Gordon discloses a miniaturized device for use in a gas chromatography system comprising a tubular column packed with a material that absorbs analytes (See Col. 1 Lines 17-30) characterized in that a heating unit is provided and characterized in that a cooling unit is provided. (See Col. 1 Line 64- Col. 3 Line 34 and Figure 1 Heater 106 and Cooler 108)

It would have been obvious to one of ordinary skill in the art to use a heater and or cooler as described by Gordon in the device of modified Bakajin because heaters and coolers are known in the art to be used in gas chromatography systems comprising filled columns for separating or containing analytes as described by modified Bakajin and Gordon (See Bakajin Abstract, Col. 5 Line25-29, and Col. 3 Lines 46-61 and also see Gordon Col. 1 Lines 18-32) and coolers and heaters provide increased sensitivity and reduce the need for longer columns in such systems. (See Gordon Col. 1 Line 33- Col. 2 Line 10). The coolers and heaters further provide an effective way of changing environmental conditions to release analyte species captured in a channel as taught by modified Bakajin. (See Bakajin Col. 5 Lines 46-59 and Gordon Col. 1 Line 65- Col. 2 Line 10)

Regarding claim 28, modified Bakajin discloses all the claim limitations as set forth above but does not specifically disclose the miniaturized device characterized in

that the heating unit is located opposite to the side of the surface of the carrier with the chamber.

While modified Bakajin does not specifically disclose the heating element being located on the opposite side of the surface of the carrier of the chamber it would have been obvious to one having ordinary skill in the art at the time the invention was made place said heating element on the opposite side of the surface of the carrier of the chamber, since it has been held that rearranging parts of an invention involves only routine skill in the art while the device having the claimed dimensions would not perform differently than the prior art device, In re Japikse, 86 USPQ 70 and since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art, In re Einstein, 8 USPQ 167.

Regarding claim 29, modified Bakajin discloses all the claim limitations as set forth above as well as the miniaturized device characterized in that the heating unit comprises a resistive heating element (See Abstract) While modified Bakajin does not specifically disclose the resistive heating element being produced via thick-film or thin-film technology it would have been obvious to one of ordinary skill in the art at the time of invention to use a resistive heating element produced via thick-film or thin-film technology because think and thin film resistive heating elements represent one of a limited number of types of resistive heating elements and a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads

to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

Furthermore since the instant specification is silent to unexpected result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a thick or thin film resistive heating element because selecting one of known designs for a resistive heating element would have been considered obvious to one of ordinary skill in the art at the time of the invention and because said thick or thin film resistive heating element would operate equally well as the one disclosed by modified Bakajin

Furthermore regarding the recitation of a method of making said heating element, the examiner notes that the determination of patentability is determined by the recited structure of the apparatus and not by a method of making said structure. A claim containing a recitation with respect to the manner in which a claimed apparatus is made does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim.

Regarding claim 31, modified Bakajin discloses all the claim limitations as set forth above as well as the miniaturized device characterized in that the cooling unit comprises a Peltier-element. (See Abstract)

Regarding claims 32 and 33, modified Bakajin discloses all the claim limitations as set forth above but does not specifically disclose the miniaturized device

characterized in that the cooling unit is located opposite to the side of the surface of the carrier with the chamber and characterized in that the cooling unit is located in a recess of the carrier.

While modified Bakajin does not specifically disclose the cooling unit being located opposite to the side of the surface of the carrier with the chamber it would have been obvious to one having ordinary skill in the art at the time the invention was made place said cooling unit opposite to the side of the surface of the carrier with the chamber, since it has been held that rearranging parts of an invention involves only routine skill in the art while the device having the claimed dimensions would not perform differently than the prior art device, In re Japikse, 86 USPQ 70 and since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art, In re Einstein, 8 USPQ 167.

Furthermore as instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the cooling unit in a recess of the carrier since such modification would have involved making elements integral. Making elements integral is generally recognized as being within the level of ordinary skill in the art. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

2. Claims 36-40, rejected under 35 U.S.C. 103(a) as being unpatentable over Bakajin et al. (US 7,290,667) in view of Bailey et al. (US 5,569,501) and in view of Tipler et al. (US 6,652,625).

Regarding claim 36 Bakajin et al. discloses a process for the production of a gas chromatograph comprising a miniaturized separation column and a miniaturized device for the storage and/or enrichment of molecules or atoms, or both, especially for a miniaturized gas chromatograph, characterized by the following steps: (See Abstract)

b) Deposition of at least one layer of filling material, which comprises nanoscale carbon nanotubes, carbon nanofibers and/or fullerenes on to a carrier and (See Abstract and

c) Covering of said at least one layer of filling material with at least one whereby the layer of filling material and the layer are deposited in such a way onto the carrier that a channel is formed between the carrier and the layer, the channel containing the filling material, and whereby two openings are structured into the carrier which can be used to connect the channel to the outside world. (See Figure 1A-1D where cover layer 15 is deposited on the substrate to form a channel and Figure 3 where channel has openings to connect the channel to the outside world)

Bakajin et al. also appears to disclose a step of manufacturing the miniaturized separation column using microsystem technology. (See Col. 3 Lines 25-47)

Bakajin does not the at least one layer being amorphous carbon.

Bailey et al. discloses the use of a layer of amorphous carbon, Diamond-Like carbon, which is deposited onto a substrate and used as a coating, i.e. cover, t. (See Abstract and Col. 1 Lines 23-30)

It would have been obvious to one of ordinary skill in the art at the time of invention to deposit a layer of amorphous Diamond-Like carbon onto a device as described by Bailey et al. in the process for the production of a miniaturized device as described by Bakajin et al. because Diamond-Like Carbon is known in the art to provide a cover layer or coating as required by Bakajin (See Bailey Abstract and Col. 1 Lines 23-30 and also see Bakajin Col. 3 Lines 40-45) and Diamond-Like carbon is a known stable, hard, and scratch resistant material useful in coating, i.e. covering, and a wide variety of other applications. (See Bailey Abstract and Col. 1 Lines 8-30)

Furthermore assuming even if Bakajin does not disclose using microsystem technology to manufacture the device Bailey discloses depositing the amorphous layer using PECVD and therefore the device is manufactured, at least in part, using microsystem technology. (See Bailey Abstract where amorphous carbon is deposited via PECVD)

Modified Bakajin does not specifically disclose the step of connecting one of the openings to the inlet of the separation column.

Tipler et al. discloses a gas chromatography system where in there is a pre-concentrator comprising a chamber packed with an material therein to concentrate analytes. The outlet of the chamber is directly connected to the inlet of a separation column of a gas chromatograph. (See Fig. 6 and Col. 4 Lines 32-53)

It would have been obvious to one of ordinary skill in the art at the time of invention to connect the outlet of a chamber for concentrating materials as described by modified Bakajin et al. to the inlet of separation column of a gas chromatograph as described by Tipler et al. because it is well known in the art to connected the outlet of analyte concentrating chamber to the inlet of gas chromatograph separation column in order to perform accurate analysis of an analyte using a gas chromatograph.

Furthermore modified Bakajin specifically mentions being used in gas chromatograph systems and as such it would have been obvious to directly connect the device of modified Bakajin to the inlet of a gas chromatograph in order to quickly and effectively convey analytes between the two said devices.

Finally as instant specification is silent to unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect the two devices as described by Bakajin, i.e. a gas chromatography system and a miniaturized device used therein, since such modification would have involved making elements integral. Making elements integral is generally recognized as being within the level of ordinary skill in the art. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 37 modified Bakajin discloses all the claim limitations as set forth above as well as the process characterized in that the layer of filling material is deposited via Chemical Vapor Deposition (CVD) and the layer of amorphous carbon is deposited via Plasma Enhanced Chemical Vapor Deposition (PECVD). (See Bailey Abstract where amorphous carbon is deposited via PECVD and also see Bakajin Col. 3 Lines 46-50 where nanotubes are deposited using a CVD growth process)

While modified Bakajin may not specifically disclose the use of a Plasma Enhanced Chemical Vapor Deposition (PECVD) method for depositing the filling material it would have been obvious to one of ordinary skill in the art at the time of invention to use PECVD to deposit the filling material because PECVD represents one of a limited number of forms of CVD and a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, depositing a filling material, it is likely the product not of innovation but of ordinary skill and common sense.

Regarding claims 38-39 modified Bakajin discloses all the claim limitations as set forth above as well as the process characterized in that the area of the carrier, where the layer of filling material is deposited, is predefined by a catalyst layer of structured transition metal, previously deposited on the carrier characterized in that iron is used as the transition metal. (See Col. 3 Lines 50-65 and Figure 1A 12)

Regarding claim 40 modified Bakajin discloses all the claim limitations as set forth above as well as the process characterized in that a silicon wafer is used as a carrier. (See Col. 3 Lines 50-65 and Figure 1A 11)

Response to Arguments

3. Applicant's arguments with respect to claims 22-43 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue on page 7 of the response that "a skilled artisan would not have had a reason to modify the combination of Bakajin et al. and Mayer et al. to arrive at a miniaturized gas chromatograph comprising a miniaturized separation column and a miniaturized device, wherein an outlet of a chamber of the device is directly connected to the separation column of the gas chromatograph. Neither reference pertains to filtering or concentrating atoms in order to perform an analysis in a separation column of a gas chromatograph. In fact, nowhere in the combination of cited references does the phrase "separation column" even appear."

It is the examiner's position that modified Bakajin as applied in the reference above does in fact disclose being used in a gas chromatograph (See Col. 5 Line 42-Col. 6 Line 10 where the use of the disclosed device in gas chromatography systems is mentioned numerous times.) Furthermore it is noted that while the phrase "separation

column" may not appear in either reference it would be generally recognized by one of ordinary skill in the art at the time of invention that the described gas chromatography systems of the prior art would include separation columns since such separation columns are integral parts commonly required for the operation of said gas chromatography systems. Regardless however the new prior art reference of Tipler et al. has been applied to show the obviousness of connecting the outlet of a device described by modified Bakajin to the inlet of a gas chromatograph separation column.

Applicants argue on page 8 of the response in regards to claims 36-40 that " a skilled artisan would not have had a reason to modify the combination of Bakajin et al. and Bailey et al. to arrive at the claimed method. Neither reference pertains to filtering or concentrating atoms in order to perform an analysis in a separation column of a gas chromatograph. In fact, nowhere in the combination of cited references does the phrase "separation column" even appear.

It is the examiner's position that modified Bakajin as applied in the reference above does in fact disclose being used in a gas chromatograph system for filtering and/or concentrating atoms. (See Col. 5 Line 42- Col. 6 Line 10 where the use of the disclosed device in gas chromatography systems is mentioned numerous times.)

Furthermore it is noted that while the phrase "separation column" may not appear in either reference it would be generally recognized by one of ordinary skill in the art at the time of invention that the described gas chromatography systems of the prior art

would include separation columns since such separation columns are integral parts commonly required for the operation of said gas chromatography systems.

Regardless however the new prior art reference of Tipler et al. has been applied to show the obviousness of connecting the outlet of a device described by modified Bakajin to the inlet of a gas chromatograph separation column and conveying atoms between said devices in order to perform an analysis of said atoms.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN M. HURST whose telephone number is (571)270-7065. The examiner can normally be reached on Mon. - Thurs. 6:30-5:00; Every Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on (571)272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. M. H./

Examiner, Art Unit 1797

/Michael A Marcheschi/

Supervisory Patent Examiner, Art Unit 1797